

Winter 1998 Commencement Speech at The Ohio State University  
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*Professor Bruce E. Bursten  
Department of Chemistry  
The Ohio State University*

## **"Good Fortune and Hard Work"**

### **I. Introduction**

Thank you, President Sisson. Greetings faculty colleagues, deans and dignitaries, distinguished honorees, and university trustees. Greetings family and friends. And most of all, greetings to the Winter Quarter 1998 graduates of The Ohio State University.

What a joyous day this is for all of us. I am thrilled and deeply honored to be able to share this wonderful occasion with you. It is certainly one of the most special days in your lives as it is in mine. But I can imagine what some of you are thinking: Last quarter, former president Gordon Gee was the commencement speaker. So who do you get this quarter? A chemistry professor? Kind of makes you wish that you had completed that last GEC a little sooner or procrastinated a bit less in writing that last chapter of your dissertation, doesn't it? Some of you may be thinking that the path to graduation has already been delayed by an encounter with a chemistry professor. And here it is happening again, to all of you this time.

Perhaps you are thinking that this will be relatively painless, as it was many years ago when Sir Winston Churchill was the commencement speaker at the Harrow School in England. Churchill reportedly rose to the podium, said "Never, never, never give up," and sat down. I am afraid that you will not be quite that lucky--after all, have you ever met a professor who can say just five words and shut up?

So the pressure is on for me. And I hope not to disappoint you. I have therefore set a few goals for my remarks: First, I hope to be brief -- relatively. Second, I hope to be light-hearted -- for the most part. And third, I hope to teach you some chemistry -- sort of. I promise that there will not be a quiz following this speech. But... I will be asking you to participate, so stay on your toes. And I hope we will have some fun.

Before I attempt to offer you some modest words of advice--that will be in the obligatory yadda-yadda part of the speech--there is something I very much want to do. Here we are in St. John Arena, a place in which tens of thousands of graduates have received their degrees, a place that has witnessed countless OSU athletic achievements, and, as recently as last month, a place that has been the focus of national and international politics. We have a large crowd of enthusiastic and happy people. There are video cameras rolling. I am speaking to the largest audience to whom I have ever spoken. So there are two words that I want to say, two words that have almost become an icon in a situation like this: Hi Mom! Yes, my mother is here today. In fact, I would imagine that many of you graduates have mothers in attendance today, and I would ask you to join me in greeting them the same way. So all together now: Hi Mom!

## II. Good Fortune and Hard Work

That was fun, wasn't it? Now let me move to the heart of the matter. One of the privileges given to commencement speakers is the opportunity to offer pithy words of advice that we earnestly hope might help you in the future. I will be no different. On wonderful occasions like today, many friends and loved ones will wish you "Good luck." My faculty colleagues and I all hope for good fortune for you. And it is undeniable that luck and chance play major roles for all of us. Think for a moment about some of the twists and turns of fate that you may have faced while a student at OSU. Your current best friends might be women and men who happened to be housed on the same floor of a dormitory, or who randomly took the same elective course as you. These are individuals who you hadn't met prior to coming to OSU, and they will be part of your lives from this time forward. Your choice of major or dissertation topic may have depended on a seemingly minor conversation with one of your professors, or on a particular course that affected you deeply. You may someday be lucky enough to win the lottery, although I hope you have taken enough courses in mathematics or statistics to realize that you probably should not count on that!

Most of you will soon leave Columbus to start exciting new jobs or to seek post-graduate education. And perhaps you are wondering whether you made the right choice of the options available to you, hoping that the Fates were smiling on you the



day that you made that momentous decision. Indeed, there are times when life might seem like a line from the movie Dirty Harry: "Tell me punk, do you feel lucky?"

I have had marvelous coincidences that have led to the vast good fortune in my life. I met my wife of 20 years by virtue of the fact that we both chose to go to the same university for graduate study. My best friend is a fellow with whom I first communicated by Morse code when we were both active ham radio operators in the 1960s. Today we communicate daily by e-mail. I met my best friends in Columbus, a group of loyal OSU alumni, because I knew a guy who played racquetball with them. Largely coincidences, yet these are the friends for whom I would put my life on the line.

Outside of my personal relationships, my greatest good fortune has been to end up at Ohio State, where I have spent the last 18 years. The luck in that? OSU happened to be looking for a person with my research background the same year that I was looking for a job as a professor. A wonderful, life-changing coincidence for me.

So why am I speaking of luck and chance on a day in which we are celebrating your hard work and academic achievement? Ah, there's the rub. Luck and hard work are, more often than not, inextricably related. And you will find, more often than not, that we create our own good luck. As a scientist, I try to heed the wisdom of Louis Pasteur, the great French chemist. At his 1854 Inaugural Lecture as the Dean of Science at the University of Lille, Pasteur stated, "In the fields of observation, chance favors only the prepared mind." In other words, you must work hard to prepare yourself for the good things that we often call luck to happen. Let me assure you that this view of the connection between hard work and good fortune is not limited to scientists. Emily Dickinson, the famous and reclusive American poet, wrote, "Luck is not chance... It's toil-- Fortune's expensive smile is earned." Even college football coaches have expressed this belief! Darrell Royal, the longtime football coach of the University of Texas, provided this very succinct summation: "Luck is what happens when preparation meets opportunity." That's good, isn't it, even from a man who favored the wishbone offense? "Luck is what happens when preparation meets opportunity."

In my own case, yes, I was very lucky that Ohio State was looking for someone in my area of expertise back in 1980. But the biggest part of my luck, and that of my colleagues here today, was that we had worked hard to be in a position in which we were invited to help contribute to the excellence at OSU. And it is our continued good fortune that our preparation has led to the opportunity to be with you today.

So tell me, graduates, do you feel lucky? Are you prepared to meet opportunity? We faculty have pushed you hard to learn more than you knew, and, in many cases, more than you thought you ever could know. You have worked hard and have achieved excellence, as evidenced by the fact that you are here today. You are soon to receive a degree from one of the great universities in the world. You are now poised, in Dickinson's words, to earn Fortune's expensive smile. But you are not done, not nearly. Your graduation from OSU is a beginning, not an end. Yes, you might be preparing to enter your dream job or a top graduate or professional school. And your hard work here has led to that good fortune. But you must continue to work hard in order to have your good luck continue. You owe it to yourself, and there are a lot of us here counting on you.

Let me offer a few modest words of advice that might help you in your continuing quest for good fortune and excellence. And I am happy to tell you that, for most of you, this will be the last time an OSU professor stands before you telling you what you are supposed to do! And I take that charge seriously, so here goes:

Inform yourselves endlessly. Read, surf the Web, listen to the radio, converse with friends and loved ones, whatever it takes to find out more.

You must also be careful, as I will remind you later.

Be a good listener. I think it is safe to say that most of us learn more when listening than we do when speaking. But it is not enough to just listen--you must hear what people say to you. Incidentally, I'm still working on this one myself...

The most important thing to know is what you don't know. Knowing what you don't know is the key to knowing what you need to know. And when you don't know, find out! Don't be afraid to ask hard questions, of others and of yourself.



Communicate effectively. Language is powerful. Use it wisely and correctly. Keep your college dictionary, or, better yet, buy yourself a bigger one. Read Strunk and White again. And if you have no idea who Strunk and White are, find out!

Be passionate but also be compassionate, and don't take yourself too seriously. Zeal is good, zealotry is not. Being understanding is good, being overbearing is not. And if you don't find the humor in some of the things that you do, trust me, others will.

Realize the importance of relaxing and enjoying yourself. Sometimes it is hard work to unwind. Learn how to do so, be it through the arts, recreation, travel, special time with family and friends, volunteer activities, whatever. Einstein had his music, Churchill took up painting at age 40. Find something. It will be worth it.

Be a good person. That's profound, isn't it? And yet it is so important. My favorite writer, the incomparable Mark Twain, said it very well: "Always do right. This will gratify some people, and astonish the rest. "

All of us here today who care for you deeply--your parents and families, your friends, your faculty members, and the leaders of this great university--wish you continued good luck. The hard work in your futures will be yours but so will the good fortune. And rest assured that we will all be more than happy to grab as much credit for your successes as you are willing to allow us!

In a few minutes, you will be able to call yourselves graduates of The Ohio State University. Go forth, make yourselves proud, make us proud, and do good.

### III. Finale

I know that sounded like an ending, but I'm not quite finished. Remember that I promised to teach you some chemistry? Now those of you who have taken courses in chemistry here know that we enjoy showing the marvels of our craft to eager students. And there is nothing like some well-orchestrated pyrotechnics and explosions, usually controlled, to stimulate interest in the awesome beauty of chemistry. I wish I could tell you that I had

some whiz-bang explosions planned for you right now. As much "fun" as that might be, the State Fire Marshal would doubtless have some problems with that. So what to do?

Last year, the Internet was buzzing with a wonderful commencement speech that started with the words, "Wear sunscreen." Any redhead such as yours truly will endorse that sage advice. This speech was generally attributed to Kurt Vonnegut at his 1997 commencement address at MIT. But there was a problem with that, which some of you might know: Kurt Vonnegut never spoke at MIT last year, and he did not author the "Wear sunscreen" speech. It was in fact written by Mary Schmich, a columnist for the Chicago Tribune. Remember, as you are informing yourself endlessly, always check the facts!

Anyway, the advice "Wear sunscreen" is essentially chemistry in action. Sunscreen serves to block ultraviolet radiation, much as the atmospheric ozone layer does. So I am going to ask the graduates to participate in a virtual reality chemistry demonstration of a real reaction related to atmospheric ozone chemistry. Really. Remember that any chemical reaction has the stuff you start with, then an arrow, then the stuff you end up with. I think you will see very quickly where I am going with this. And I hope I can pull this off.

May I ask all of the graduates to stand please. Now here comes the hard part. I am going to divide you into three groups depending on the degree you are about to receive. If you don't know what degree you are about to receive, we will be happy to provide detailed directions to Ann Arbor. The first group, which we will call Group 1, will consist of bachelor's candidates from the Colleges of the Arts and Sciences. Group 1, please raise your hands. Group 2 will be the bachelor's candidates from all the other Colleges. Your hands, please? And Group 3 will be those of you receiving graduate or professional degrees. Your hands?

The reaction we will model is one in which an excited oxygen atom, which is one of the products of the absorption of ultraviolet light by ozone, relaxes into a less excited oxygen atom.

Group 1, you will be the stuff before the arrow, namely an excited oxygen atom. Oxygen, as you should know, has the chemical symbol O, and you will indicate your participation in



the reaction by shouting out the symbol of your element. In fact, you can also indicate the element by putting your arms like such. Let's try it. Group 2, you will be the arrow of the reaction. Now normally the arrows in chemical reactions go from left to right. But, you are standing and crowded together, so we will have you indicate the arrow as up and down, like such. And the arrow doesn't have a name per se, but you might want to let the atoms know you are there. So say "Hi". Let's try it. Group 3, as the oxygen atom after the arrow, you already know the drill. Go ahead.

We're almost there. Now some of you might still think of chemistry as something rather magical, so I will provide some magic words for this reaction. After I say them, I need you do your parts, first Group 1, then Group 2, then Group 3. Ready? Here we go. For this reaction, the magic words are...the magic words are, "How firm thy friendship!" Group 1, Group 2, Group 3.

That, my friends, is good chemistry. Congratulations, work hard, and good luck. Thank you very much.